

PATENT ABSTRACTS OF JAPAN

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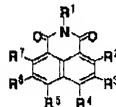
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(54) ORGANIC NONLINEAR OPTICAL MATERIAL AND ORGANIC NONLINEAR OPTICAL ELEMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To form an org. nonlinear optical material having high nonlinearity even at a crystal level and capable of generating second harmonic waves in a UV region by using the org. nonlinear optical material consisting of a specific naththalene deriv.

SOLUTION: This org. nonlinear optical material consists of an org. compd. having the absorption end on a short wavelength side, i.e., the naththalene deriv. expressed by constitutional formula. In the formula, R1 denotes a 1 to 6C alkyl group, 7 to 11C aralkyl group, 6 to 12C aryl group and may have single or plural substituents on these group. R2 to R7 denote hydrogen, a 1 to 6C alkyl group, 7 to 11C aralkyl group, 7 to 12C aryl group, halogen element, alkoxy group, nitro group, ester group, acyl group, alkylthio group, alkylamino group, cyano group. This org. nonlinear optical element is constituted by using such org. nonlinear optical material.



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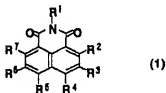
Application No. 8-135429 - 29 May 1996

Applicant: Nippon Denki K.K., Tokyo, JP

Title: Organic non-linear optical material and organic non-linear optical element

[Claims]

1. An organic non-linear optical material, characterized by comprising a naphthalene derivative represented by the following formula (1)



herein R¹ is a C₁₋₆ alkyl group, C₇₋₁₁ aralkyl group, C₆₋₁₂ aryl group, which may be substituted by one or more substituents; R² to R⁷ are hydrogen, C₁₋₆ alkyl group, C₇₋₁₁ aralkyl group, C₇₋₁₂ aryl group, halogen element, alkoxy group, nitro group, ester group, acyl group, alkylthio group, alkylamino group, cyano group.)

2. An organic non-linear optical element, characterized by comprising the naphthalene derivative according to Claim 1.

[Excerpt from the descriptive part of the specification]

[Prior art]

By using non-linear optical phenomenon that can lead to various effects such as the generation of high frequency, generation of sum frequency, Kerr effect, Pockels effect, etc., various functional elements such as the basic elements for realizing wavelength conversion element, light modulator, optical switch and optical computer such as optical logic gate, photo transistor, etc.